To: Poulet, Chris[Poulet.Chris@epa.gov]
From: Schmit, Ayn
Sent: Fri 12/19/2014 5:23:34 PM
Subject: RE: Article on Pavillion

Thanks, Chris- here is the link to the report:

http://wogcc.state.wy.us/pavillionworkinggrp/Draft%20Pavillion%20Field%20Pits%20Review_11242014.pdf

Happy holidays!

Ayn

From: Poulet, Chris
Sent: Thursday, December 18, 2014 3:28 PM
To: Schmit, Ayn
Subject: Article on Pavillion

Hi Ayn,

Here is the article.

Chris

1. Tons of toxic soil, but no link in latest Pavillion report ATSDR named WyoFile -- 12/12/2014 Casper, WY

Tons of toxic soil, but no link in latest Pavillion report ATSDR named
By Dustin Bleizeffer December 12, 2014 WyoFile

Encana Oil & Gas has excavated some 23,000 cubic yards of contaminated soil from legacy oil and gas well pits in the Pavillion field — the same field that is home to dozens of rural homeowners.

According to WyoFile calculations, that's enough soil to cover an American football field (including both end zones) nearly 11 feet deep.

But so far there's no definitive link between the polluted sites and petroleum compounds discovered in water from some domestic wells there, according to the Draft Pavillion Field Pits Review. The Wyoming Oil and Gas Conservation Commission issued the draft review earlier this month. It focuses on several oil and gas well pits within a quarter-mile of about 14 domestic water wells that are the focus of the investigation.

The report is posted on the WOGCC's website. The state is accepting public comments on the draft report through January 16.

It is the second of three reports issued so far in Wyoming's ongoing investigation of polluted drinking water in the area, with results again indicating that key information to help determine the source of petroleum compounds in drinking water is still missing. The investigation calls for a better understanding of the local hydrology, and more data from domestic wells.

"We'll wait for public comments to come in, and determine if any revisions are necessary to the report. Once that is complete, we'll work with the operator to implement the recommendations we made in the report," said WOGCC natural resources program supervisor Tom Kropatsch.

A review of oil and gas well bores this fall indicated no evidence of leaks or potential pathways to the domestic water wells, although it also found that important data to complete the investigation is missing. The third report, already in the works, will review domestic water wells and water resources.

John Fenton lives in the area affected by polluted water. He said his family and their neighbors have sought answers for nearly 10 years, yet the state seems to be moving slowly and making little progress.

"(The state is) making people wait for a very long time and not producing much data," Fenton said.

Encana spokesman Doug Hock said the company's environmental team is reviewing the draft report and will submit comments to the state. "We, like the landowners, wish it could go faster, but … they're trying to be very thorough," said Hock.

Polluted pits

Encana inherited the contaminated pits when it acquired the Pavillion oil and gas field from Tom Brown, Inc., in 2004. The operator began cleanup of the pit sites as part of a voluntary remediation program with the Wyoming Department of Environmental Quality. The contaminated soil is taken to a DEQ-approved "land farm" in Wyoming where it is treated. Some of the soil is returned to the gas field where it has been used to back-fill legacy pits, according to Encana and state officials.

Drilling pits are used as storage for drilling muds, cuttings and some residual fluids. Wells have been drilled in the Pavillion field dating back many decades. Pits associated with legacy oil and

gas wells were often unlined. Many of the sites reviewed in the WOGCC report were initially drilled by Shell Oil Co. between 1960 and 1980.

"Although records on file with the WOGCC do not definitively indicate the process followed by Shell, it is expected that these reserve pits and drill cuttings were closed following standard industry practice and buried without treatment," the report says.

As part of the DEQ-sanctioned soil remediation effort, samples are tested and compared to a simple Total Petroleum Hydrocarbons (TPH) threshold standard to determine whether soils from drilling pits require excavation and/or treatment. But that may not provide specific enough information. Measuring TPH gives an indication of gross quantity of petroleum hydrocarbons, but it generally is not used to indicate risks to humans and the environment.

"Future pit investigation work in the Pavillion Field should include analysis for specific soil constituents of concern, such as BTEX, TPH-GRO, TPH-DRO, and naphthalene," the report states.

BTEX is used to describe a group of volatile organic compounds such as benzene, toluene, ethylbenzene and xylenes. Exposure to BTEX can harm the central nervous system.

Fenton said he wasn't surprised to learn that Encana has removed enough contaminated soil to cover a football field 11 feet deep.

"There's a massive number of pits that have never been dug into," Fenton said. "They're allowed to leave stuff in the ground … that's still fairly contaminated."

Wyoming's investigation

Several residents in the Pavillion field began reporting sudden changes in the quality of their domestic well water around 2005, suspecting it was related to renewed drilling and hydraulic fracturing activities by Encana. Dissatisfied with the state's response, residents and landowner advocacy groups convinced the U.S. Environmental Protection Agency to investigate.

"The residents out there contacted EPA and got EPA involved, and by the way, we welcomed that because EPA could bring a lot more resources (than the state)," former Wyoming DEQ administrator John Corra told WyoFile in 2012.

The EPA in December 2011 preliminarily determined that chemicals commonly used in fracking likely contributed to contaminated drinking water. State and industry officials pointed to several deficiencies in the drilling and testing methods of two monitoring wells commissioned by EPA, which led to the federal agency's preliminary finding.

EPA continues to stand by its 2011 report, while state and industry officials insist the EPA's conclusion is in error.

After a couple of contentious years between the state, industry and EPA, the federal agency

turned the investigation over to the state of Wyoming in 2013. At that time, Encana contributed $1.5 million to the Wyoming Natural Resource Foundation to help pay for the state's investigation effort. Encana and the state have also contributed to alternative drinking water supplies and cisterns for residents who were told to avoid using water from their domestic wells.

Residents in the area, and landowner advocacy groups, have questioned whether the state is qualified to lead the groundwater investigation. For example, they have asked why the state is limiting its review to facilities within one-quarter mile of the cluster of domestic water wells under focus. The state's response is that the scope of its review "was predicated on" WOGCC's own standards for a "permit to drill or deepen" a well.

Fenton said that such standard regulations were developed many years before recent advancements in oil and gas extraction technology. And while the state's rules and regulations might have made sense for permitting purposes, those standards were likely never intended to guide such an investigation as required in Pavillion.

"I don't think their standards are anywhere close to catching up with the technology," said Fenton.

Human health impacts

Despite several recent reports warning of potential exposure to silica and numerous toxins (air-borne and water-borne) from fracking activities, Wyoming's current investigation effort does not call for additional review of potential links between industry activities in the Pavillion field and complaints about illnesses.

In 2010, the Agency for Toxic Substances and Disease Registry examined potential "exposure pathways" limited to "the ingestion of drinking well water and inhalation of contaminants from vapors while showering," according to ATSDR and EPA. "Other potential exposure pathways exist for exposure to water contaminants, including watering livestock and irrigation of crops, which were not addressed in this health consultation."

That assessment found "widespread incidence of low levels of organic compounds in drinking water wells," according to an EPA fact sheet. "Overall, 17 of 19 drinking water wells sampled in January 2010 show detections of total petroleum hydrocarbons. Additional compounds detected include naphthalene, phenols and methane."

Neither state or federal agencies plan a further health assessment.

Wyoming DEQ placed a mobile air quality monitoring station in the Pavillion field and collected data for about a year. It didn't measure any exceedances of standards for human health. However some residents say they'd like to see a more detailed monitoring effort to help them answer questions about respiratory problems and other illnesses.

Cost of investigation

Of the $1.5 million from Encana, $150,000 was allocated to statewide education and awareness programs through the Wyoming Association of Conservation Districts, according to Gov. Matt Mead's office. Another $400,000 was allocated for water delivery in the Pavillion area.

To date, WOGCC has billed $119,252.27 for the well bore integrity and pits reports. Wyoming DEQ has billed $305,000 for its portion of the investigation to date — that's in addition to approximately $150,000 from previously allocated DEQ funds for past investigation efforts in Pavillion, according to Gov. Mead's staff. DEQ staff anticipate an additional $200,000 to $250,000 for the remainder of their investigation.

Deadline to comment on the Draft Pavillion Field Pits Review is January 16. Comments can be emailed to WOGCC supervisor Mark Watson at mark.watson@wyo.gov

Chris Poulet

ATSDR Division of Community Health Investigations

ATSDR Region 8

1595 Wynkoop Street

MS-8ATSDR

Denver CO 80202

303 312 7013

cgp8@cdc.gov/Poulet.Chris@epa.gov